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What About the School Research Office?

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This study was undertaken to enlighten both practitioners and the Laboratory about current practices of school research offices in utilizing R & D information. Data for the study came from (1) background readings on organizational theory, (2) recent studies on research offices in local school districts, (3) personal interviews with 15 academicians and practitioners with experience in the area, and (4) authorities' replies to letters concerning various aspects of school research office organization and functions. It was found that the capacities of school research offices are limited by lack of autonomy, role uncertainty, and inadequate fiscal and personnel resources. Where school district leadership and teamwork with other school personnel create favorable conditions, the school research staffs have demonstrated proficiency in assessing needs, formulating problems, and in collecting, analyzing, and disseminating data. Where school staffs are resistant to systematic program planning or self-evaluation, the instructional research function has become an isolated and largely expendable function. From these and other results, recommendations are made for the Laboratory and guidelines are developed for school administrators. A 60-item bibliography is included. (HW)

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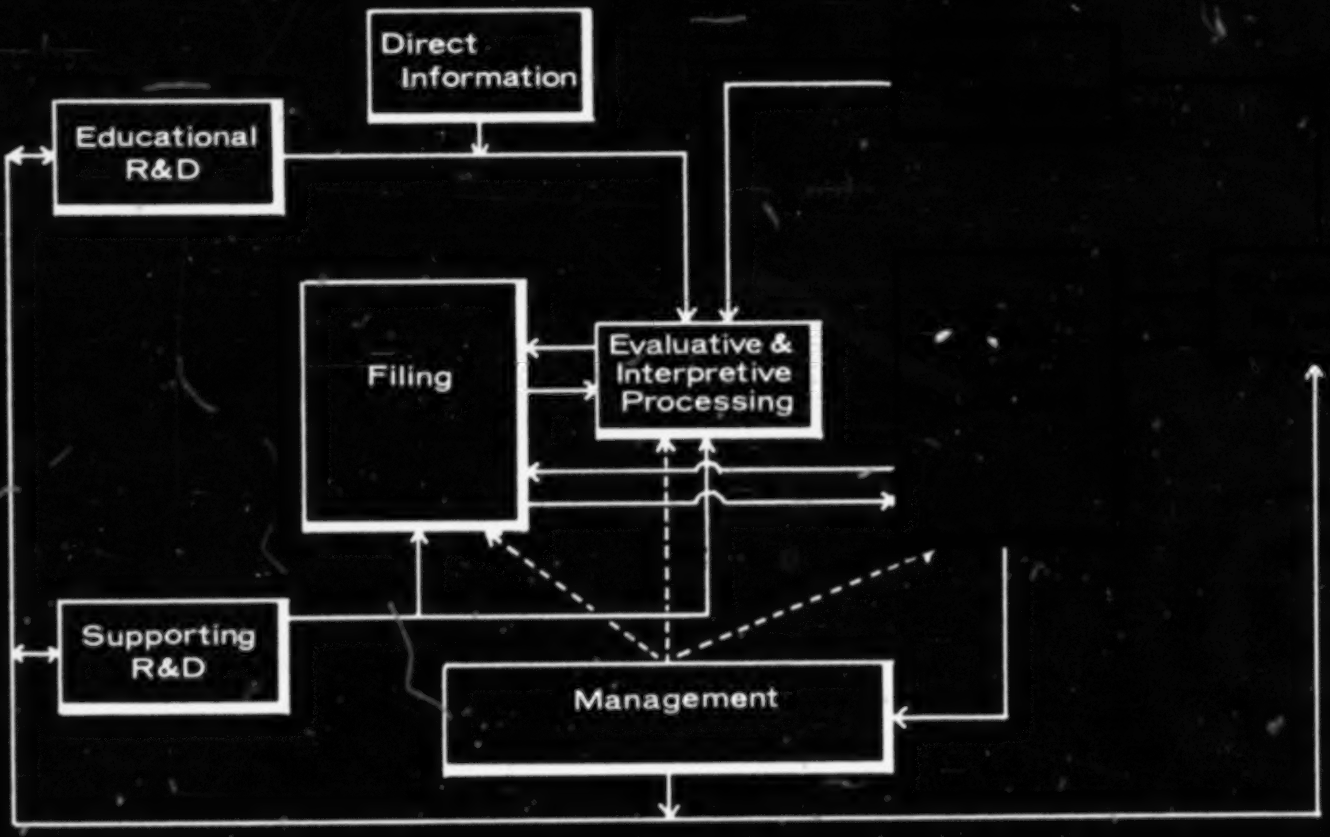
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# WHAT ABOUT THE SCHOOL RESEARCH OFFICE?

by

Edith K. Mosher

December 1968

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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## ERRATA

| | |
|---|---|
| Foreword: | substitute foreword for forward |
| Page 27, 2nd paragraph, line 9: | substitute research administrator for administrative research |
| Page 29, line 2: | substitute "rigor" for "vigor" |
| Page 36, 2nd paragraph, line 4: | substitute to be circulated for to circulated |
| Page 70, line 14: | substitute become for becomes |

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# FORWARD

The objective of this report is to provide an up-to-date appraisal of the school research office as an arrangement for the utilization of R & D information by school personnel. This is one of a series of reports prepared by the Communication Program as by-products of its development work.

The goal of the Communication Program is to increase the ability of school personnel to make effective decisions regarding the use of the products of educational research and development. The immediate objectives of the program are (1) to investigate school personnel's needs for and interests in research and development information, and to develop and evaluate methods for presenting general R & D information; (2) to develop prototype systems for providing comprehensive and well-evaluated specific information; and (3) to investigate and develop organizational arrangements and training methods that will improve the R & D information utilization and decision-making process in the schools.

This report is most directly relevant to the last of these objectives. For large and intermediate size districts, the school research office is an obvious, well-established organizational arrangement for R & D utilization. In this report, Dr. Mosher provides an analysis of this particular arrangement. Her findings and recommendations are of immediate interest to our Communication Program planning, but should also be of interest to our administrators as well as scholars and practitioners who are concerned with educational planning, change, and R & D utilization.

Other related reports by the Communication Program include: Educational R & D Information System Requirements, Communication Program Survey, Organizational Arrangements and Personnel Training Programs for Effective Use of R & D Information in Decision Making Processes of School Systems, Literature Survey of the Use of Educational Resource Material and the Decision Processes Associated with Educational Innovation, A Survey of the Decision Processes and Information Needs in Education and The Research and Instructional Unit as an Organizational Arrangement to Increase the Utilization of Research Related Information.

PAUL D. HOOD
Director
Communication Program

## SCHOOL RESEARCH OFFICES IN THE SPOTLIGHT: PURPOSES AND METHODS OF THE STUDY

Questions regarding the role of school research offices and their contribution to school programs have generated periodic studies and debates in educational literature. Few firm conclusions have been drawn from the resulting facts and opinions because the activities of research offices have so often been at odds with their purported missions, and because there have been few uniform practices among them.

The perennial query which entitles this report, "What About the School Research Office?", has remained unanswered. A brief summary publication cannot hope to close this gap in our knowledge of school organization and practice. However, it can explore current practices and trends. Since 1960, and especially since 1965, the traditional concept of educational research has undergone a series of changes. According to David Clark, Dean of the School of Education of Indiana University, the base of school research is being broadened beyond the realm of educational psychology; the numbers and types of people involved in educational research and development are changing; and the meaning of the word research has been both clarified and expanded. Clark's optimistic conclusion was that "The primary effect of this situation is the establishment of research and development as a vehicle to promote change in education--a movement of research from a position peripheral to the field of education to a position of centrality in the development of the field." (41)

Recent educational policies and programs, especially those imposed by Federal grants to school districts, resulted in the delegation of new tasks to many research office staffs. Some have eagerly welcomed the prospect that new resources of money and know-how might enhance their opportunity to contribute to more effective school programs. A few districts have implemented, or are now considering, organizational innovations which would increase their use of research competencies in educational planning and decision making. Several recent studies of school research offices provide descriptive data, but they have not been collated or interpreted in relation to these changing conditions. In general, the role of the school research office appears to be a puzzling and relatively underdeveloped aspect of projected plans to restructure educational research and development activities on a broader front. This neglect is due in part to the fact that the terrain is difficult to map, as it is in many other areas of school administration.

## Purpose of the Study

This study of school research offices was designed to serve several purposes and two sets of readers whose interests differ somewhat. The Far West Laboratory for Educational Research and Development needs to find the most effective means of linking its activities with those of local school districts. The Laboratory's personnel need to know the various ways schools conduct research and utilize information. The author found that reliable information regarding present practices is difficult to search out, and that school officials themselves frequently lack a framework for the evaluation and modification of their own research activities, based on the experience of others in the field. This study therefore was undertaken to enlighten both practitioners and the Laboratory about school research offices, the most firmly and widely established formal arrangement for conducting school-based research.

Meanwhile, educators inside school systems confront demands for organizational and instructional innovations which often cannot be properly evaluated in the light of their experience and present informational resources.

In the colorful language of Dean Keith Goldhammer of Oregon State University, many are concerned because they have been unable to "thaw out the glacial climate" which freezes the processes of change in their districts, and they cannot wait to consider and then adopt the "best-way" solutions to their problems. School administrators must make such decisions every day, and research-based evidence which widens their choice of alternatives is necessary. The author has thus framed some interim conclusions in a form which school officials may review while considering the establishment or reorganization of a central staff unit responsible for research and development functions. Because of the degree to which school systems vary, it is impossible, and actually undesirable at this stage of knowledge, to explain the hows of the organizing process in any detail. However, characteristic strengths and weaknesses of school research offices, which both administrative theorists and practitioners recognize, will be pointed out and some guidelines for future planning of such offices will be offered.

## Methods of the Study

The data for this study came from several sources: (1) background readings concerning developments in organizational theory, in educational research and administration; (2) recent studies, surveys, and conference reports dealing with research offices in local school districts; (3) personal interviews with approximately fifteen academicians and practitioners known for their special acquaintance with relevant developments in school district administration or for their broad experience in the area of school-based research; (4) replies, from more than twenty others, to letters of inquiry concerning various aspects of school research office organization and functions. The last two sources, nation-wide in scope, were explored by the Laboratory staff in an independent effort to identify and assess current problems and issues. Informants included representative research practitioners in school districts, university researchers, private consultants, staff members of research organizations, and officials of state departments of education, but the inquiry was intentionally biased by the preponderance of professional "movers and shakers." It sought not only to interpret past experience but also to emphasize emergent trends which can bring research-based information effectively to bear on educational planning and decision-making.

Any degree of success of this future-directed objective is due to the willingness of respondents to answer, in person or by letter, questions about their opinions and activities. The report benefited greatly from the perceptive evaluation of a preliminary draft by the following consultants: Dr. Alden W. Badal, Director of Research, Oakland Public Schools, Oakland, California; Dr. Clyde J. Baer, Director of Research, Kansas City Public Schools, Kansas City, Missouri; Dr. Richard O. Carlson, Center for the Advanced Study of Educational Administration, University of Oregon; Dr. Frank E. Delavan, Director of Educational Research Services, Sacramento City Unified School District, Sacramento, California; Dr. Sam Sieber, Professor of Education and Psychology, Teachers College, Columbia University. The editorial assistance of Miss Sandra Crosby of the Laboratory staff was also a valuable contribution to the report.

The reader is reminded of the methodological problems to be overcome in developing a set of generalizations about school practices, especially when they are drawn, as was necessary in this case, from a number of studies and commentaries of persons with differing vantage points. School districts come in all shapes and sizes and are nested within the overlapping jurisdictions of county, state and national government. All of these agencies have to some extent become interested in educational research, an activity which tends to permeate the organizational boundaries of laboratories, schools, offices, and classrooms. The local district retains much authority for its internal management, including the decision to create a research office and make specific task assignments to its staff. The general statements concerning school research offices found in the following sections are based on a careful examination of persuasive evidence, but it must be conceded that, amid so much diverse information, exceptions are not hard to find.

An added problem is that of keeping the subject under consideration in the proper perspective. School research offices are among the relatively minor components of the vast American educational enterprise. Focusing attention on them can easily lead to an exaggeration of their place in the overall scheme of school administration. Several steps were taken to deal with possible distortions. The introductory sections of the report place school research offices within the context of the changing influences and pressures which affect all school administrators and their staffs. In a later section, data are included to indicate the distribution of research offices among local districts of varying size. The subsequent treatment of the present status and potential roles of school-based research staffs draws on concepts which are widely applied in organizational and administrative analysis. Thus the subject has been limited and isolated, while it has also been related to larger events and issues.

## THE RESURGENCE OF SCHOOL-BASED RESEARCH (1961-1968)

Complex social, economic, and fiscal pressures and problems engulfed local school districts after World War II. Almost daily, school administrators were prompted to adopt hurried courses of action without employing the resources of scientific inquiry. The nature of these larger problems and issues is copiously documented elsewhere and does not require much attention here.

Agencies other than school districts became involved in efforts to fill the void by providing research-based solutions for the many problems of public education. During the 1950's, the expansion of educational research activities was largely stimulated and nourished by Federal Government grants to university researchers. Local school districts were virtual bystanders.

A veteran school research director estimates that, until quite recently, the number of functioning research offices in the country did not exceed 25. The best established units were firmly anchored in the academic traditions of psychological experimentation, mental measurement, and survey methodology. Many required staff members to have advanced academic qualifications, yet offered them scant opportunity to win professional recognition outside their school settings. On the other hand, persons designated as research administrators in many school districts were not, in fact, highly trained or experienced in this specialization. The mid-50's saw a flurry of interest in action-research; school-based researchers would presumably guide groups of teachers to design and conduct studies in classroom settings. The movement was short lived. In general, the research administrator or staff member employed by a school district remained suspended between two deeply divided worlds. He could not identify fully with his peers in either the realm of the university or that of elementary and secondary education.

In the late 1950's, two studies criticized large-school research offices (those found in districts with student enrollments over 10,000) for not conducting "pure" research. (10,51) Neither the academic investigators nor the directors of the offices sampled questioned whether alternate forms of research activity might better serve school system needs.

Although such a situation does not encourage new ideas, they did develop elsewhere because of growing concern over the gap which continued to separate research and school practice. During the past decade, university scholars, staff members of professional organizations, and Federal and state research administrators have wrestled with ways to better define educational research functions and to link them in institutional settings. In a separate but related effort, academicians and educational practitioners began to draw on examples in fields such as industry and agriculture, and proposed that all the processes of information collection and processing be more effectively integrated with educational program planning and management.

One paper presented at the 1961 Phi Delta Kappa Symposium on Educational Research is representative of the former trend and deals explicitly with desirable modifications of school research offices. (6) Its author, Dean Roald Campbell of the University of Chicago, independently surveyed their performance as well as that of school study councils, analyzed their problems regarding the dissemination and implementation of research findings, and suggested a program for future action. His conclusions corroborated earlier findings: few school districts had formally-recognized research programs; staffing and funding levels were too low for the effective operation of those programs in existence; and teachers were likely to resist adopting any research-based recommendations for changing their instructional practices. He deplored the communication barriers between school classrooms and university laboratories, between teachers and researchers, and between teachers and administrators. He blamed much of the current dissatisfaction and misunderstanding on lack of understanding about "research" and what it can or cannot do in school settings. He argued that a distinction between pure and applied research was oversimplified, and advocated an interpenetrative division of the tasks of educational inquiry between researchers outside and within school districts.

An article published in 1968 by Dean Keith Goldhammer of Oregon State University provides a similar landmark for assessing changing views about school-based research activity. (20) Whereas Campbell had dealt primarily with the problems of the school research practitioner, Goldhammer discussed those of the school administrator. Goldhammer had directed a study published in 1967, concerning school superintendents' perception of their needs and problems. (21) His 1968 article began with a view of the school organization, showing the administrator's responsibilities in this perspective, and then indicated what he considered to be the uses and values of research in carrying out these functions. His hopeful recommendation that research offices could and should be "a resource and tool to serve the school organization" specifies their potential contribution in management improvement.

Which influences during the seven-year period marked off by these two studies affected the environment and substance of school-based research work? Let us turn to developments in three different areas: educational practice, organizational change, and forward planning.

## CHANGING GOALS: A NEW ENVIRONMENT FOR EDUCATIONAL RESEARCH

### From Research to Practice

Between 1910 and 1920, a number of large city school districts established research offices, largely in response to aspirations or demands for efficient and rational operations which were to lead to the maximum benefits of scientific methods of inquiry. (35) In the decades that followed, their performance fell short of the goals. Henry M. Brickell, well known for his exhaustive study of innovation in New York school systems, recently wrote, "School practice in the United States cannot be understood as being based primarily on research." (25) Egon Guba, Director of the National Institute for the Study of Educational Change, traces this disappointing development at the practical level to the long-entrenched practices of university researchers. They chose to study areas of personal interest and, incidently, largely ignored problems of general practical interest which would be suitable for programmatic team efforts. Their studies had a theoretical orientation and adhered almost exclusively to psycho-statistical traditions and experimental formats. Most of the *ad hoc* projects produced findings which were neither cumulative nor generalizable.

The following harsh assessment of the low yield of university-based research was made by the director of a highly regarded school research program, whose name is withheld for obvious reasons:

> ...educators have been very unrealistic in expecting much help from research as it is currently conducted. It would seem that research would offer the best means of measuring the relative merits of exposition and various kinds of discovery. Unfortunately past experience fosters little optimism. Classroom teachers in elementary, junior, and senior high schools live in a different world from the college-based researchers. The researchers point to gross errors in the folk wisdom of the teachers.... The teachers

> retort that research is usually impractical. Too often it is an investigation of insignificant variables or else variables which are outside the control of the teacher. The problems studied are often too narrow for practical use. The end product for the university researchers is a written report. This might appear to be dissemination of information; but in a way, it is not, because the report is written in esoteric language comprehensible only to researchers. A research project is considered successful if it yields an analysis that stands the critical scrutiny of fellow researchers. The usefulness of the results to the schools appears incidental in most cases.

In spite of such dissenting voices and until quite recently, an idealized version of the relationship between the work of university researchers and that of educational practitioners was widely accepted: namely, that the "truths" discovered by the former, by their intrinsic merit and the perceptive hospitality of teachers, would in time become the guides to better practice. The work of school research personnel neither strengthened nor dispelled this myth, which seems to have been relatively harmless as long as demands to modify school programs remained at the low levels to which they sank during the Depression and World War II.

By the late 1950's, however, greatly increased investments in educational research, plus new imperatives to update school curricula, utilize new technologies, and educate populations of economically and racially disadvantaged children, made the existing situation more visible and indefensible. In other fields, such as agriculture, medicine, and space exploration, a variety of methods effectively channeled the flow of of scientifically-derived knowledge to ultimate consumers. Scholars and policy-makers began to examine the narrowly-bound concepts and low productivity of educational research in relation to unmet needs for innovation in school programs. They drew on experience in other areas, and concluded that better definition of the processes and structures of educational inquiry was essential. To close the gap between research and practice, between knowledge production and knowledge utilization, they mapped out a series of related, but distinct and sequential tasks.

In the article cited above, Campbell proposed a four-step continuum: basic studies, field testing, information and promotion, and application to practice. A more precise and widely accepted rubric is that of Clark and Guba: research, development, diffusion, and adoption. (27) They distinguish as follows among the stages: research, the advancement of knowledge; development, the identification of operating problems and the formulation of solutions to those problems; diffusion, the creation of awareness about new developments and the provision of opportunities for their assessment along whatever dimensions practitioners may deem necessary; and adoption, the modification of a development to local situations and its institutionalization.

In conjunction with a study of professional research workers in education, Hopkins and Clark developed a somewhat more detailed catalog of the inquiry functions associated with educational innovation:

1. Conducting basic scientific inquiry.
2. Investigating educationally oriented problems.
3. Gathering operational and planning data.
4. Inventing solutions to operating problems.
5. Engineering packages and programs for educational use.
6. Testing and evaluating solutions and programs.
7. Informing target systems about solutions and programs.
8. Demonstrating the effectiveness of solutions and programs.
9. Training target systems in the use of solutions and programs.
10. Servicing and nurturing installed solutions and programs. (26)

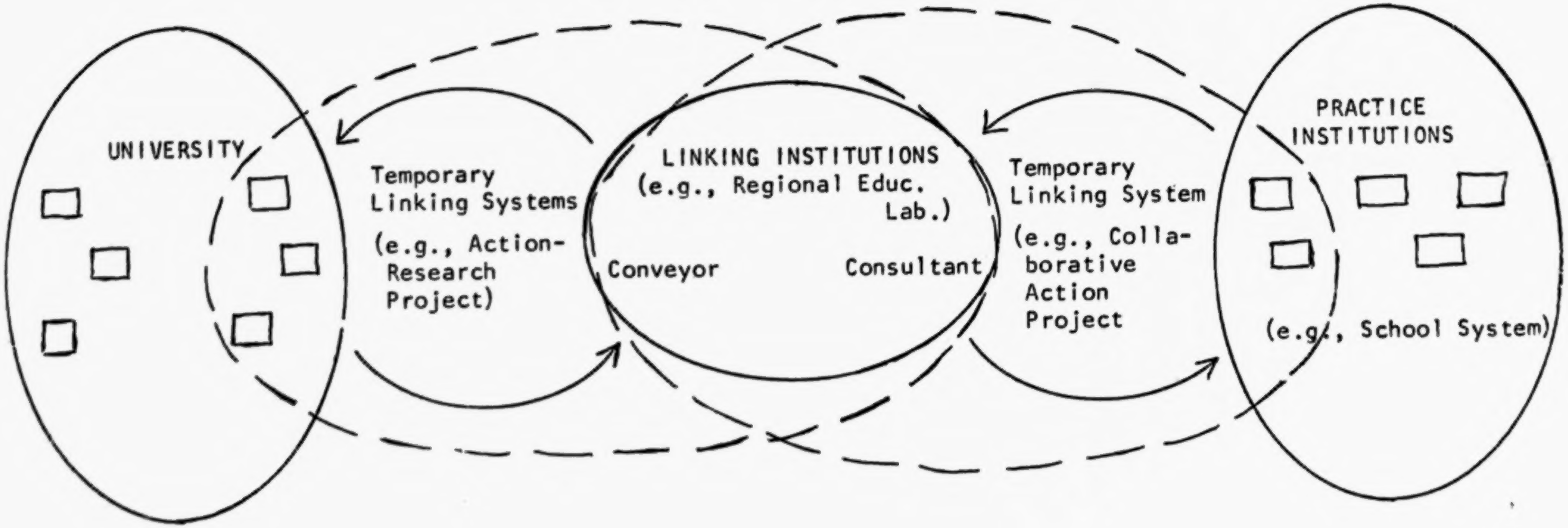
These investigators identified a number of persons already performing all of these functions, under a variety of job titles and circumstances, and they also predicted a vastly enlarged need for qualified professionals in the specializations. Others have depicted the roles of educational researchers as multi-dimensional. A professional might be qualified to perform competently some, but not all, of the necessary specialized tasks. Instead of reserving scientific importance exclusively for basic research, all relevant activities were projected as interdependent and significant stages of a dynamic process, more properly called rational inquiry. Researchers also adopted a less parochial perspective on their potential role in effecting educational change. That is, research-based knowledge, no matter how sound and pertinent, was more likely to be seen as only one of many inputs to the solution of practical school problems, along with a whole host of social, motivational, cultural, and other factors. Basic questions about the injection of new research tasks and roles into education were raised: How should the process be structured for maximum productivity? Where should various tasks be performed?

Analysts tended to agree that "basic scientific inquiry" still belonged primarily to universities and that "adopting solutions" or "nurturing installed programs" belonged to local school systems. Experience gained by the National Science Foundation and other curriculum development projects during the 1950's, as well as examples in other fields, suggested that linking institutions or temporary systems to conduct the intervening functions were indispensable. Figure 1, Ronald G. Havelock's scheme for interrelating various activities, agencies, and roles, was drawn from a wide range of sources inventoried by Havelock and his staff at the Center for Research on Utilization of Scientific Knowledge, University of Michigan. (16)

The model's underlying concept of "separateness and togetherness" has taken effect in significant and highly pragmatic ways. For example, in approving national legislation and funds for the expansion of educational research, Congress endorsed a multi-agency structure comprising such diverse units as regional educational laboratories, supplementary education centers, state departments of education, private research organizations, and local school districts. Legal provisions and implementation instructions enjoin all these recipients of Federal funds to work together and with relevant community agencies. In order to accelerate and standardize the collection and pooling of research data emanating from these many sources, the United States Office of Education established ERIC and its nationwide network of information clearinghouses.

Havelock's model still only approximates present educational research practices. General agreement has by no means been reached as to how the labors of research, development, and dissemination should be divided among the "linking institutions" nor as to what "temporary linking systems" might be an improvement over traditional inservice training devices like institutes and workshops. Of particular concern in any consideration of school-based research is whether, or how, the ultimate consumer in local districts should contribute to, or become involved in, such specialized development tasks as the engineering or packaging of improvements derived from basic findings. The building of new institutions and patterns of collaboration moves more slowly

Figure 1: Linking Institutions: separateness and togetherness[a]


UNIVERSITY
Temporary
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Research
Project)
LINKING INSTITUTIONS
(e.g., Regional Educ.
Lab.)
Conveyor
Consultant
Temporary
Linking System
(e.g., Colla-
borative
Action
Project
PRACTICE
INSTITUTIONS
(e.g., School System)

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[a] Havelock, Ronald G., "Dissemination and Translation Roles in Education and Other Fields: A Comparative Analysis," Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, University of Michigan, October, 1967. Figure 4. (This work was performed in connection with Office of Education Contract number OEC-3-7-070028-2143.)

than could be wished, but the established institutions, especially universities and school districts, are the beneficiaries of an important breakthrough with regard to their roles in educational research. They are challenged to relate to a larger context that is both more dynamic and better endowed, and to get on with the tasks of disciplined inquiry which will be distinctively their own in the future.

## Development as an Adaptive Process

The range of research activities discussed above is closely associated with the school learning and instructional processes--child behavior, teaching strategy, curriculum design, psychological measurement, etc. This is the most commonly recognized domain of educational research. However, the term "development" is also used to describe another set of tasks; that is, finding modes of adapting an entire educational institution to changing environmental conditions. Many of the essential tasks and skills of research, such as problem identification, data collection, and performance evaluation, are the underpinning for rational modes of program and organizational management. Yet scholars and school administrators who have diagnosed the ills of education during the past decade point out that schools have lacked the managerial information which most large-scale public and private enterprises would consider essential for day-to-day operations.

Given the traditional organization patterns of school districts and the occupational biases of educators, it is not surprising that they have lagged in accepting administrative practices that are widespread elsewhere. Burton Clark points out that the tasks performed in school systems have gradually become more specialized and more diverse and that this is a prerequisite for the development of the formal, rational structures and processes of administration characteristic of large-scale enterprises. However, he calls school districts "vulnerable bureaucracies" because decentralized lay boards and other community influences exercise an exceptional degree of actual or imagined authority over them. (9) Providing staff to strengthen the leadership capability of school superintendents is not consistent with the ideology of lay control nor with the view held by many educators that hierarchical modes of organization are inappropriate for a community of generalists and autonomous professionals. Furthermore, professional organizations with large teacher memberships, as well as various taxpayers' groups, are usually very effective in seeing that any additional funds the schools receive are earmarked for teachers' salaries or are tied as directly as possible to instructional rather than managerial improvements. Even in recent years, the resources made available for centralized planning, direction, and services in school districts were infinitesimal in relation to total budgets; superintendents tended to accept with resignation this fiscal anemia and imbalance.

Certainly, the situation in which most school officials work puts a premium on their ability to maintain the status quo and avoid controversy. Past professional training has not exposed them to the growing body of interdisciplinary studies of change processes, decision-making, and information systems in large-scale organizations. Certification requirements in education effectively restrict the recruitment of administrative talent from other fields. The superintendents who do employ assistants to help with their onerous chores sometimes find it prudent to use uninformative job titles or masked budget entries for such personnel. A "research administrator," for example, might actually be performing the tasks of a general staff aide in the central office of the district.

As in educational research, scholars and policy-makers not directly responsible for school management felt the challenge to vitalize educational administration. Many saw the two tasks as equally important and complementary. Even the most promising educational research activities would be useless for schools not geared for their implementation, while effectively functioning schools which were ready to adopt innovative practices would be handicapped by a lack of research-based information. The first condition is still far more widespread than the second and poses the urgent question: How can organizations which have previously devoted all their management resources to mere survival and year-to-year maintenance operations rechannel a portion of these resources into forward planning and innovation?

## Research and Forward Planning

The past decade has brought a great variety of practical measures designed to break the bonds of provincialism and tradition in school administration and especially to stimulate forward planning. For example, by the mid-1950's it was widely recognized that the decentralized school systems were providing neither the information which the country needed for forward planning and policy decisions in education, nor that needed for economic and manpower planning. It was no coincidence that Title X of the National Defense Education Act of 1958 provided Federal funds to improve the statistical services of state educational agencies. This and other subsequent efforts to standardize and automate information about all phases of school operations has heavily involved the staffs of research offices in many local districts.

Philanthrophic agencies, such as the Ford Foundation Fund for the Advancement of Education, sought with some success to stimulate local districts to adopt new practices more quickly by subsidizing specific innovative programs in selected school settings throughout the country. Other advocates of reform linked desired school improvements more broadly with the problems of civil rights, health, poverty, economic productivity, or urban renewal, and worked to effect change through official and unofficial channels of national influence. These latter efforts had indirect but unmistakable effects on the planning activities of local school districts.

In the two decades between 1945 and 1965, educators and their friends waged a long and unsuccessful campaign to obtain general school aid grants from the Federal government. They were stymied, mainly by political conflicts over school segregation and the parochial school issues. Critics of traditional school practices also began to challenge the "trickle-down" grant formats whereby funds were allocated by formula to state educational agencies, who then distributed them to local districts. They argued that earmarked funds sought exclusively for such items as teachers' salaries or construction would simply perpetuate the inequity and inefficiency in local school services, providing no leverage for innovative practices. They regarded state departments of education as hopelessly inadequate to assume leadership in effecting educational improvement. Pressures, particularly from urban school districts, led them to advocate direct Federal subventions that would encourage local school districts and community groups to attack educational problems directly.

After 1960 these influences also led to proposals that Congress earmark funds for program planning and exemplary projects. Practically every Federal education grant program enacted since 1964 has included some variant of this requirement. The effects of the policy on local school districts are most evident in the implementation of project design and evaluation mandates imposed by Titles I and III of the Elementary and Secondary Education Act of 1965. Other legislation gave the United States Office of Education authority to stimulate educational planning by making limited grants to applicants to cover initial costs of developing program plans. These plans provided a basis for deciding whether operational funding would be justified. The national emphasis on forward planning reached full flower with the passage of the Education Professions Development Act of 1967, which granted annually $15 million in earmarked funds for a five-year program "of comprehensive, systematic, and continuous planning and for evaluation of education at all levels." Many local districts which recently drafted applications to state departments of education for grants under this act may be expected to give more attention to systematic planning than ever before.

The processes of rational inquiry are essential to the forecasting and consideration of future programs of action in any area: identifying needs and formulating problems; defining assumptions; collecting and analyzing data; organizing and presenting information in ways that facilitate decisions; and evaluating their consequences. The importance assigned to educational planning in the past decade does much to explain Goldhammer's thesis that schools should mount research programs that will provide school administrators and teachers with valid, well-defined, alternate choices upon which to base their current and future decisions.

## Research and Organizational Theory

Findings concerning organizational behavior and change processes which derived at the outset from the study of business and industrial organizations began to infuse the study of schools and their administration.

Writers such as Griffith and Halpin, and scholars from other disciplines, new to the field of education, exemplified a new behavioral science orientation. (24,31). The problems of creating and running a dynamic organization in any sector were recognized to be deep seated and extremely complex. Knowledgeable diagnosticians no longer prescribed the pat formulas for promoting efficiency which once characterized the scientific management movement. Two decades of scholarly work in the universities and elsewhere, representing various disciplines and methodologies, have produced sets of findings and hypotheses about organizational behavior. Their conceptual schemes--systems analysis, operations analysis, group dynamics, decision-making theory, role theory, program planning and budgeting--are by no means completely developed nor consistent with each other; yet all relate the processes of communication and feedback to the processes of change, both within formal organizations and between organizations and their environments.

Preoccupation with the analysis of change roles and processes in schools became much more intense. Matthew B. Miles, for example, drew on systems theory and social psychological research to define a "healthy" organization as one "which not only survives in its environment but continues to cope adequately over the long haul, and continuously develops and extends its surviving and coping abilities." (8) He feels that educational researchers have been too prone to regard the organizational aspects of educational agencies as a fixed background or set of relationships, while they concentrate exclusively on effecting innovation through individuals such as teachers or school principals. Planned change, in his view, can occur only when the importance of organizational dynamics receives full recognition.

Many academicians and a few practitioners are beginning to perceive that very similar modes of inquiry underlie and link the two areas essential to organizational adaptation: those of allocating school resources wisely and those of improving the instruction and learning of children. The views expressed by Daniel L. Stufflebeam, long familiar in the study of economics and business management, concern the importance of relying on research-based information to arrive at sound decisions with regard to all instructional or managerial changes contemplated in school practice:

> If decision-makers are to make maximum, legitimate use of their opportunities they must make sound decisions regarding the alternatives available to them. To do this, they must know what alternatives are available and be capable of making sound judgments about the relevant merits of the alternatives. This requires relevant information.... Under the best of circumstances, judgmental processes are subject to human bias, prejudice and vested interest. Also, there is frequently a tendency to over-depend upon personal experiences, hearsay evidence, and authoritative opinion; and, surely, all too many decisions are due to ignorance that viable alternatives exist. (57)

## RESPONSE OF SCHOOL RESEARCH DIRECTORS TO NEW DEMANDS

From 1958 on, the developments outlined in preceding sections engaged in some way a host of scholars, men of affairs in business and industry, social planners, politicians, bureaucrats, professional educators, and even some interested citizens. A brief summary can scarcely indicate the extent to which ideas bearing on the conduct of research, the importance of planning, and change processes in organizations were explained and debated in the press, in seminars, conferences, learned journals, workshops, legislative hearings, offices, and in every other way and place that people express opinions about educational policies or practices. Although the purpose of much of the ferment was the reform of current activities at the level of teacher-student interaction, school staffs were involved only peripherially as issues were considered and policy decisions taken. Consequently, one may well ask whether anything really penetrated the boundaries of local school systems, whether school staffs were listening, and whether school-based research was affected.

In our survey of recent trends, described in the introductory section, we asked a number of school research practitioners and knowledgeable observers to reply to this query: Of what current pressures or influences to change or upgrade the R & D activities of school districts have _you_ become aware?

### The Importance of Federal Funding

One point of strongest agreement was that the requirement that federally funded projects be evaluated, especially under Title I of ESEA, had an almost explosive impact, as of 1965. It is not surprising that the urgent and greatly expanded demand for their services was generally gratifying to school research directors. However, comments on the benefits of the sudden rush to upgrade educational programs and research competencies ranged from enthusiasm to wry skepticism:

> ...The greatly increased availability of funds for special projects in evaluation in itself causes school systems to ask themselves what they can and should do in order to latch onto some of that dough...the evaluation requirements in the Federal programs necessitate more rigorous and technical procedures than have normally been employed in many cases and on a greater scale, thus creating a demand for expansion and upgrading of staffs.
>
> There has been tremendous pressure to participate in R & D activities in my state, but in most cases the results have not contributed much to the advantage of the schools.
>
> The single most important pressure on local research groups has been the evaluation requirements of the Federally funded projects...which initially scared the daylights out of most directors of research. However, when they recovered form the initial shock, they began devising ways of handling the situation. At first, they merely applied the procedures with which they were acquainted, but with each passing year I've noted that they have become more and more sophisticated in their procedures.

A variety of side effects of the influence of Federal funding were mentioned, such as these comments on the reaction of local school boards and voters to the expansion of R & D programs:

> Perhaps primary to upgrading R & D activity is increased availability of state and Federal research-related funding. Our department seemed very popular with the local school board because it entirely paid for itself.
>
> ...Pump-priming Federal programs, through insistence on planning, have helped school systems to be more proficient in planning and have heightened awareness of the need for R & D. Even so, I cannot say that the Boards of Education are pressing for increased R & D capabilities; they are simply more amenable to recommendations for personnel in these areas than before.
>
> One of our recently appointed school administrators would like to set aside two or three percent of his regular budget for research and development activities. Unfortunately his entire budget was rejected by the voters, so that I don't think there is much chance that this fine idea will come to pass right away.... Frankly, I would not say that there is any great pressure in our area to upgrade R & D activities in school districts.

## Other External Influences

Professional educational research organizations were credited by some respondents for their recent contributions to school-based research, but were also criticized:

> The Federal interest in educational R & D has served to bring such activities to the forefront of the educational picture and to stimulate a general interest for research services in all areas of public education.... This national push has also stimulated the development of many local, state, and national organizations involved in educational research... which are ostensibly striving to upgrade R & D activities in the total enterprise. However, I often feel that these efforts are really a form of "breast-beating" designed to impress those not involved in educational R & D activities with the potential worth and deserved status of these services. The problem is that few persons outside of the R & D arena notice or are impressed with these actions.

Intermediate school districts were seen by one observer as more progressive than local districts:

> I think that Federal programs have had a good deal to do with improving the R & D activities of local districts. From time to time special studies by outside groups may have a similar effect. On the whole, in my observation, school districts have been rather resistant in improving R & D activities. Intermediate school districts have been much more alert.. probably because, like the regional laboratories, they are involved in the search for identity and see this as a suitable role for themselves.

## Intra-District Changes

Several voices gave greater emphasis to the importance of research-oriented demands originating within the district, in comparison with external influences:

> The most important pressure for change persists in the curiosity and restlessness of good teachers and principals.
>
> There is an increased awareness of the need for research and of requests for the services of Research and Development from teachers and school principals. Recent self-analysis has emphasized this.

> I think we have yet to see the real influence of ERIC centers, research and development laboratories, and Federal funding requirements in research and development.

One observer traced positive effects on school research programs to changes in the professional preparation of administrators and teachers:

> It appears that school administrator training programs are becoming more objectively oriented in the process of decision making.... Teacher training courses now frequently require inclusion of courses in and about research. New teachers are consequently more sophisticated and have different expectations than do older staff members.

Several comments dealt with influences originating in the community at large:

> Increasingly, reluctant taxpayers are demanding some proof of the efficacy of expensive technological innovations and conceptual methodology. These ideas require the evaluation of their effectiveness in the teaching-learning process.
>
> ...outspoken political and community leaders at the state and local levels are assuming that a great portion of public school budgets for research and development would help solve current problems. The sources of current pressures are general and their intensity is mild but increasing.

### Greater Emphasis on Planning

Of particular interest are the responses which indicated the potential contribution of research to decision making and forward planning in school districts:

> Within about the past five years our department has experienced sudden growth through additional personnel assigned and many more requests for service on a variety of questions. It is my impression that there is a greater demand both locally and nationally for additional information to be made available on which judgment may be made as to the efficacy of school programs offered.
>
> ...planning is beginning to be identified as a part of the research operation. Far too much of the research effort to date has been concerned with putting out fires; that is, with short-range practicalities, whereas research should play a major role in long-range planning.
>
> We suffer from a lack of long-range planning and from a lack of some agency for tying together the various programs

> of the district and projecting their needs and defining their interrelationships. The need for this type of organization is especially acute at a time when the local curriculum is being assailed by so many external influences.

From this evidence, one may reasonably conclude that the staffs of some research offices are aware of changing circumstances. They emphasize different aspects, but all see the pace of change as moderate. None foresees a revolution in school-based research and development.

## Survey of Changing Workloads

Summary information concerning changing workloads is available in the report of a 1967 survey of research administrators in school systems. (55) Among other inquiries, these officials were asked to list any significant modifications of their positions in the period from 1964 to 1967. Out of a sample of 168 respondents, 45% indicated that there had been no change. However, half of this group also stated that the question was inapplicable because their positions had been created since 1964. The new positions reported were heavily concentrated in districts enrolling fewer than 25,000 students. It appears that formal recognition of the research function has recently expanded into smaller districts.

If the newly established positions were omitted from the sample, the respondents reporting recent changes increased to 70%. About half mentioned increased involvement in Federal project-related activities. From 18% to 30% of the respondents listed additional "total" workload, data processing and computer services, evaluation of instructional programs, or experimental pilot programs. About 16%, particularly those from districts with a student enrollment above 25,000, indicated that their positions had been reorganized within the preceding three years.

The investigator also asked the research directors to list significant modifications of their positions which they expected within the next few years. From the sample of 168, 42% failed to indicate that they expect any change to occur. The tendency to project future modifications was disproportionately higher among directors employed in districts enrolling 25,000 to 100,000 students. About 30% of all the respondents mentioned a prospective increase in the size of their professional staffs, and 20% felt some form of office reorganization would take place. To a somewhat lesser extent, directors listed an enlarged scope of activities, the addition of data processing services, and more involvement in Federal projects. Greater concern with the quality of research was implied by those who mentioned as possiblities increased program and research evaluation activity and more sophisticated research.

These survey findings confirm that a substantial number of local school districts have already felt the effects of external influences on educational research activities which have resulted in expanded workloads, research staff reorganizations, and the creation of new positions. The anticipated changes which the survey reports for the future also move in predictable channels. However, since more than 40% of the respondents did not offer such projections, it appears that either the changes are likely to be very unevenly distributed among school districts or that some of the present incumbents in administrative research positions are unable to perceive, or unwilling to speculate about, their future responsibilities. They may also be uncertain regarding the continuance of state, national and private support for educational research and development activities, a factor likely to have great influence on their prospects.

One cannot casually weigh or dismiss the attitudes and opinions of those involved in present school-based research programs, since, in some locales, they are rooted in a history which spans several decades. To explain them and assess their impact on future organizational or program changes requires a longer look at their background and present circumstances. School research offices were the subject of a number of studies between 1930 and 1960 (30,53,60), but these are outdated by the onrush of recent events in educational policy and practice. The following summary of the characteristics of existing offices has been drawn from a number of investigations made during the 1960's. The concentration of studies within this brief period is itself a clue to the resurgent interest in the problems and prospects of these offices.

## EXISTING SCHOOL RESEARCH OFFICES: RESOURCES AND ROLES

Nationwide surveys of school research offices are reported in the 1965 National Education Association publication, Research Units in Local School Systems, in a doctoral dissertation by Alvie L. Shaw (University of Denver, 1967), and in a summary issued by the Research Division of the Denver Public Schools. (14,47,55) The doctoral dissertations of James C. Davis (Stanford University, 1963) and J. R. McKenna (University of Iowa, 1966) are intensive studies of small samples of school research offices. (13,37) Robert Rippey, Director of the Center for the Cooperative Improvement of Instruction, School of Education, University of Chicago, made public in early 1968 a study of research covering thirty-three suburban districts in the Chicago area. (48) This is the only study focused on small-sized districts and systematically relating research productivity to the demographic and administrative aspects of school districts. The other recent studies, usually the questionnaire or interview type, cover a small number of schools very thoroughly or else are very extensive. They are largely descriptive and vary greatly in type and organization of data. The evidence which follows is that which these scattered sources confirm most strongly and consistently when viewed in a dynamic context. This analysis only indicates, rather than defines with vigor, the most general and apparently significant aspects of school research offices. It deals with the following questions: How widespread are school research offices? How big are they? What is their organizational role and status?

## Distribution and Size

To evaluate the importance of formally organized research services for students in K-12 school districts throughout the country, several variables must be considered. These include the total number of school districts, which now exceeds 20,000; the distribution of enrollment by district, which ranges between more than 1,000,000 to less than 300 students; and the estimated number of districts having a research office or a research administrator. Table No. 1 presents findings of these interrelated factors for districts enrolling more than 12,000 students, stratified by size of district. It should be noted that the reported number of research offices is based on incomplete returns to questionnaire surveys and that the totals may not include all those established in Strata I to IV. Furthermore, no investigator has attempted a complete inventory of districts enrolling less than 12,000 students. Districts must apparently have close to that number of students before they establish a full-time position of research director; formally organized research programs are exceedingly rare in districts enrolling less than 10,000 students. The sample studied by Rippey indicates, however, that in small districts or individual schools some staff members may engage, on a part-time or occasional basis, in school-initiated research projects, or may work in collaboration with outside personnel who are conducting research at school sites.

As a general rule, however, the size of a school district determines whether it has a research office. Table I indicates that an estimated

## TABLE NO. 1

Distribution of School Research Offices in Districts Enrolling More Than 12,000 Students, by Size of District and Percent of Total Student Enrollment in All K-12 Districts

| STRATA | NUMBER OF SCHOOL DISTRICTS[1] | PERCENT OF TOTAL ENROLLMENT[1] | SCHOOL DISTRICTS WITH RESEARCH OFFICES (Estimated)[2] | | PERCENT OF STUDENT ENROLLMENT IN DISTRICTS WITH RESEARCH OFFICES (Estimated) |
|---|---|---|---|---|---|
| | | | Number | Percent of Districts | |
| I<br>Over 100,000 | 24 | 13.5% | 22 | 90.0% | 11.0% |
| II<br>50,000 to 99,999 | 47 | 8.0 | 43 | 92.0 | 7.0 |
| III<br>25,000 to 49,999 | 77 | 6.0 | 47 | 61.0 | 4.0 |
| IV<br>12,000 to 24,999 | 307 | 12.5 | 176 | 57.0 | 7.0 |
| TOTAL | 455 | 40.0% | 288 | 63.0% | 29.0% |

[1] Data is based on enrollments in October, 1964, reported in the following sources: Strata I-III, NEA Report 1966-R13; stratum IV, Digest of Educational Statistics 1965 (OE-10024-65)

[2] Based on Table XIII, p. 60, of the Shaw report, op. cit. this investigator initially sent requests for collaboration to all superintendents of districts enrolling over 12,000 students listed in the Education Directory (Washington: Government Printing Office, 1965). Of this group of 435 officials, 214 agreed to participate in the survey, 71 declined without giving a reason, 106 stated that no research director was employed, and 44 failed to reply. The estimates given are inflated because it is assumed that the 71 districts unwilling to participate (16% of the total queried) did in fact have research administrators. Of the 221 districts eliminated from the second stage of the survey by this method, 171 or 80% were in stratum IV, and one-half of these were among the number who stated no research director was employed.

63% of the country's 455 largest districts have research offices, and that these are notably more prevalent in districts enrolling more than 50,000 students. In all four strata combined, the districts with research offices enroll about 29% of all students in K-12 schools. Even allowing generously for errors in the collection of data concerning the numbers of formally organized programs, it is reasonable to conclude that their influence does not extend to more than one third of the potential clientele of teachers and pupils. It should also be noted that districts with research offices account for only about 1.3% of the total number of local school districts in the United States.

A research office, then, is not in any sense a typical organizational unit of a school district. It will be found in districts which have sufficient size and resources to support a range of specialized central staff services. In a few areas, intermediate educational agencies, such as county offices or consortia of local districts, provide research services to small districts. In most circumstances, the term "research position" is more apt a designation than "research office." Shaw, for example, found that in 20% of the 168 districts providing questionnaire data, the "office" consisted of a single employee, the research director. A slightly larger percentage of respondents, especially those in Strata I and II, reported that the research director supervised other professionals, such as research supervisors or assistants. About half of the research directors, also disproportionately representing larger districts, reported that they supervised some clerical staff. The total size of research offices depended in all cases on the range of functions performed. When data processing and testing operations were not under the supervision of the research office, the total number of employees was reported to be between three to six persons, even in relatively large districts. Larger-sized staffs were more likely to result from the assignment of operational and accounting workloads, rather than being indicative of greater research capability. None of the investigators reported a predictable relationship between the size of the research staff and the size or affluence of the school district.

### Duties and Responsibilities

The long-standing confusion as to what school-based research is, or should be, plagued the investigators seeking to describe, compare, and summarize the duties and responsibilities of existing school research offices. It was difficult to agree on the most meaningful taxonomy of research tasks, and the wide diversity of activities actually performed by the staffs of such offices complicated the problems of data reduction. Harking back to original premises, they tended to report and categorize as research all activities in conjunction with surveys and experimental studies, especially if some kind of project report was produced, regardless of the subject or purpose of the study. All other workloads, such as those involved in testing programs, student personnel accounting, or production of public relations materials were likely to be labelled "services" or "operations" -- non-research responsibilities. This approach is implicit in reporting the results of the NEA and Shaw surveys. Their questionnaires included a checklist of miscellaneous functions and activities; respondents indicated whether they had major, minor, or no responsibility for each. They also estimated the percentage of time spent on research functions, including surveys and experimental studies as well as any other activities the respondents considered to be research. Further delineation of workloads was obtained by subdividing the surveys and experimental studies into those which originated in the research office, those conducted for other departments in the school system, and those originating outside the school system.

Davis adopted a scheme, originally devised by Cowley, for grouping research office outputs as follows: reference and information; studies and investigations; statistics, reports and interpretation; tests and measurements; and miscellaneous services. He also inventoried the specific projects underway in each of six offices in the San Francisco Bay Area and classified them as administrative research, instructional research, guidance and counseling research, and miscellaneous research. His workload data are more specific than those provided in the studies previously cited, since he reports whether the research offices had complete or occasional responsibility for each of 42 specified activities and whether they either supervised, or merely consulted with, other departments in carrying out these tasks.

Rippey made use of a comprehensive and informative taxonomy for educational research activities, developed by Lazarsfeld and Sieber, which has the following major categories: administrative research, psychological studies, curriculum and instruction, and social aspects of education. (See Table 2.) These categories are further divided, making it possible to classify all aspects of school research office workloads in conjunction with the broadly defined objects of inquiry and analysis. However, Rippey reported only the number and types of projects actually completed, and disregarded other research-related tasks. As in the NEA model, he classified the studies as motivated by sources within or without the district.

Table No. 2

Distribution of Research Projects in 33 Suburban School Districts by Type and Origin, by Percent[1]

| ADMINISTRATIVE RESEARCH | EXTERNALLY MOTIVATED | INTERNALLY MOTIVATED | TOTALS % |
|---|---|---|---|
| Allocation of Materials and Personnel | 7% | 1% | |
| Description of School Structure and Personnel | 3 | 3 | |
| Sociological Analysis of Schools as Formal Organizations | 3 | 2 | |
| Subtotal | 13% | 6% | 19 |
| PSYCHOLOGICAL STUDIES | | | |
| Social Psychological Studies | 2 | 2 | |
| Personality Variable Interrelationships | 1 | 1 | |
| Factors Determining Performance | 2 | 2 | |
| Special Problems of the Gifted, Retarded, etc. | 3 | 5 | |
| Subtotal | 8 | 10 | 18 |
| CURRICULUM AND INSTRUCTION | | | |
| Instructional Methods Research | 3 | 10 | |
| Curriculum Research, Including Studies of Student Needs and Program Outcomes | 4 | 14 | |
| Test Construction and Analysis | 1 | 6 | |
| Subtotal | 8 | 30 | 38 |
| SOCIAL ASPECTS OF EDUCATION | | | |
| Social Inputs | 3 | 7 | |
| Institutional Context | 3 | 6 | |
| School Social Setting | 2 | 4 | |
| Subtotal | 8 | 17 | 25 |
| TOTALS | 37% | 63% | 100% |

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[1] Adapted from Table 1, Rippey, Robert M., "Patterns of Research in Thirty-Three Suburban School Systems", Paper Prepared for the Annual Conference of American Educational Research Association, Chicago, Illinois, February, 1968, (Mimeo.) p. 3. Typology taken from Lazarsfeld, Paul and Sieber, Sam D., Organizing for Educational Research, Englewood Cliffs, Prentice Hall, 1964.

Several of these investigators agree that the range of duties and responsibilities of each school research office depends largely on local demands and resources, and that there is no set of functions common to all of them. To some extent, however, it is possible to characterize the most probable type, focus, and origin of their tasks. For example, the NEA study reports that 63 of 102 research offices devoted less than 40% of their time to surveys and experimental studies. McKenna reported a somewhat higher allocation of time to these activities in the ten offices he studied in depth. In general, the offices which list the direction of surveys and experimental studies among their minor responsibilities are likely to be included in the sizeable group that lists some combination of the following responsibilities as major duties: testing programs, collection of information and data from other systems, completion of surveys and questionnaires from other sources, preparation of department reports, and consultant services. These are almost certain to be listed by every district as either major or minor responsibilities. Among the functions performed by a number of offices, but also least likely to be assigned to them, are tasks involving budget planning, capital planning, curriculum planning, and personnel accounting. As mentioned above, many districts report a new and substantial workload--the preparation of the district's grant applications for submission to government agencies and foundations.

Davis found that the offices in his sample tended either to have full responsibility for test administration and analysis or to be completely divorced from these tasks. The NEA and Shaw surveys indicate that, nationwide, this split is about 50-50. Davis also found that the most consistently reported activities were regular or occasional reference service, compilation of statistics, and preparation of reports;

and, further, that the consultant or supervisory responsibilities of research offices were widely distributed. Thus their staffs were partially involved in performing a range of tasks for which other offices were primarily responsible. Again the NEA and Shaw surveys confirmed the prevalence of this tendency; consultant functions were reported as a major workload by about 50% of their respondents. McKenna found that the research directors in his sample had a wide range of contacts with central office personnel, supervisors, and school principals. However, of the 16 district research directors polled in his and Davis' studies, only one mentioned working with teachers on action research projects as a primary task.

The studies report that nearly all research offices monitor research conducted within their districts by outside personnel and act as information sources to external agencies seeking data on the programs and students of the district; they may compile, analyze, and filter data to circulated elsewhere. Many research offices report that they collaborate with visiting researchers on district-based research projects. However, the bulk of their workload is generated within the school district, rather than directly from external sources. The Rippey study found that internally motivated projects outweighed externally motivated projects by a ratio of 63% to 37%. Shaw reported that 119 out of 168 research directors spent less than half their time on projects originating outside their districts.

School-based researchers tend to describe their projects or entire workloads as "boiling down" to essentially either instructional or administrative research. Since these terms have no uniform meanings, it is difficult to determine the relative importance of the two areas of research office activity. Findings based on Davis' and Rippey's thorough inventories of individual projects are not consistent. Davis reports that 70% of the total workloads could be classed as administrative research and miscellaneous services, while Rippey allocated only 44% of all studies to his categories of administrative research and social aspects of education (Table 2). Of these four types of research, administrative research is significantly more externally motivated, while curriculum and instructional research is significantly more internally motivated, given the 63% internal versus 37% external split for all types. Psychological studies and social aspects of education percentages are not greatly different from what would be predicted from the type and origin subtotals. It should be noted that the districts studied by Davis had 1960-61 enrollments ranging from 5,000 to 93,000 and that all had full-time research directors. The Rippey sample was drawn from districts whose 1964-65 enrollments ranged from 500 to 16,000 students, the majority of which had only a part-time research director. The differences in the findings of the two studies point to two possible inferences: (1) smaller districts are more likely to conduct research on instructional problems than larger ones; and/or (2) instructional research projects became more numerous between 1961 and 1965.

Discussions at a recent informal gathering of research directors representing about 50 of the largest school districts give some support to two propositions: (1) that district size and the employment of a full-time director are associated with increased involvement in administrative research, and (2) that instructional research is receiving more attention than previously. It also appears that the workloads of such offices are becoming somewhat more standardized. The following summary of the discussion of their views includes yet another classification of research office duties, and mentions planning as a major function:

> About half of the directors present reported that they have responsibility for administrative research as well as instructional research. Sometimes the division between the two functions is clearly provided for in the organizational structure, and sometimes it is not. Where the division in function is not clear, the research organization sometimes finds most of its energies absorbed in handling administrative research. As recently as 1961, little real instructional research was conducted, but it is becoming more prominent.
>
> Five distinct functions which research organizations may have were identified as administrative support, independent evaluation, planning, instructional development, and data processing. The extent to which the research division is responsible for the different functions differs from city to city, though...the similarities between operations are increasing.

## Organizational Status

The examiners of research offices have not dealt directly with the problems of defining their intraorganizational relationships or assessing the strengths and weaknesses of their contribution to school programs. However, indicators which measure organizational status and performance indirectly may be found in the data collected concerning the position of the research office in the school district hierarchy; the titles, salaries, and qualifications of research directors; and the funding provided for research activities. The analysis which follows draws on these data as well as on several research directors' replies to our survey question: What advantages and disadvantages (assets and liabilities) do research offices have for developing new research and development roles, functions, and perspectives?

Title, Rank and Salary. In school administration, officials whose duties and level of responsibility vary widely may nonetheless have the same job title. This is true both within a district and among districts of various sizes. The school district research administrator usually has the straight-forward title of "Director of Research," and, in districts enrolling between 12,000 and 100,000, reports directly to the Superintendent of Schools. He is likely to be a member of the Superintendent's cabinet. In the largest districts, the research office tends to be lodged at a lower level of the hierarchy, supervised by a deputy or associate superintendent. About 18% of the respondents in Shaw's study and 15% of those in the Denver Public School Research Department survey reported that the person responsible for the research program had the position title of "Assistant Superintendent." This is most common in larger districts and indicates a considerably higher status and salary than the usual designation of "director."

In terms of national averages, the compensation of research directors falls about midway in the range for school administrators. Their reported annual salary of $13,000, which varies only slightly in districts which enroll from 12,000 to more than 100,000 pupils, is below the average amount paid to assistant superintendents and senior high school principals. It is about equal to that of district personnel directors and junior high school principals; is 20% higher, on the average, than the salaries of central office supervisors of business, instructional, health, and pupil personnel services; and is 75% higher than that of the average teacher. (52) The salaries paid to research directors by individual districts may vary considerably. Davis reports a range of $8900 to $15,000 in six California districts in 1960-61; McKenna notes a range of 10,200 to $16,500 in ten midwestern districts in 1966.

These salary figures are consistent with the requirement in most districts that research directors, like other school officials of their rank, must have several years of experience as teachers or school administrators. More intensive training in the behavioral sciences or research methods and research experience may also be prerequisites, but the Shaw and McKenna studies indicate that the academic credentials of most research directors do not differ markedly from those of their colleagues at comparable salary levels. They are typically men in mid-40's with graduate degrees, whose careers have been exclusively in the field of education. Shaw reported that 21% of 168 districts required a doctorate and that 52% required at least a master's degree for the position. Half the directors in McKenna's sample had Ph.D.'s, and he reports that this higher degree is likely to be a prerequisite for the newly established positions. Once appointed as specialists, however, staff members may find that their opportunities for promotion are more limited than those of their peers in "line" positions. They are not so likely to move into principalships or superintendencies. They must look for advancement either through the expansion or upgrading of their district's research program or through transfer to a research position elsewhere.

Internal Organization. Both the size of the district and the types of assigned duties and responsibilities affect the internal organization of research offices. The latter is probably more important in determining its complexity. Subordinate units are likely to be created to handle operational workloads such as student accounting, testing programs, or data processing, and their supervisors may acquire considerable autonomy. When these tasks are performed by other school departments, the research office staff members act more as undifferentiated generalists. Practically all school-based research personnel report difficulties in devising satisfactory organizational modes for segregating instructional and administrative research activities, which they see as involving somewhat different staff competencies, departmental relationships, and school clientele. Several sizeable districts have created entirely separate organizations for the two research types, putting the instructional research unit under the supervision of the district's senior administrator in charge of instructional programs and leaving the administrative research unit directly under the superintendent or his deputy. Some research directors oppose this organizational policy on the grounds that objective evaluation of the district's instructional programs may be impaired and coordination of the district's research activities made more difficult. Instead they usually advocate segregating the administrative and instructional workloads within the research office. However, as directors of large offices have stated, this formal distinction is hard to preserve in the day-to-day assignment of duties.

Funding. The low and uncertain funding level for present school district research programs is consistently reported as a constraint. It is difficult to assess this allegation because research directors frequently do not have separate budgets, and school accounting practices make it difficult to determine the amount which districts actually spend for research, either in absolute terms or in relation to their current operating budgets. The amounts expended for salaries of the research office staff are commonly included in the district's general salary accounts; research office costs may be lumped with those of other central staff offices. Moreover, individual districts do not have comparable procedures to cost out such services as data processing and test administration. However, expenditures are unquestionably low in comparison to those in other public or private enterprises of comparable scope. They do not even approach the 3% allocation which research directors in large cities estimated was being expended for the evaluation of projects funded under Title I of ESEA. (4) Furthermore, whenever superintendents have to make difficult choices as to the allocation of limited resources, the research office is likely to suffer a cutback.

Davis found that the median expenditure for the research offices in his sample was about .45% of the total district budget, and that there was no correlation among research expenditures, assessed valuation per child, or size of district enrollment. The NEA study revealed such wide variations in the reporting of expenditures that no effort was made to estimate an average research cost or to categorize research office budgets. However, no district showed costs in excess of .5% of current operating budgets except where operational programs such as testing, data processing, or guidance services were included in the tabulation.

Would more generous funding increase the effectiveness of present research offices? The only significant finding bearing on this question is that the districts in Rippey's sample which had full- or part-time research directors produced more research than those which had none; and in a stepwise multiple regression analysis, this variable was found to be most relevant, accounting for more than 34% of the variance in the amount of research completed in all districts. Apparently in districts enrolling between 3,000 to 12,000 students, financial support and assignment of formal responsibility for research activities have important effects. Rippey also found that affiliation with the University of Chicago's Center for the Cooperative Study of Instruction was significantly related to the amount of research done. However, as indicated above, the value to school districts of collaborating with university researchers is a disputable issue.

Other findings are impressionistic and equivocal. Observers report that some competent staffs are severely handicapped by lack of funds from contributing what they could to the improvement of district administration and instruction. Others are funded more generously than their performance justifies. Studies of other types of organizations indicate that tight and unpredictable budgets produce, or at least are associated with the "overload" pathology reported by many research offices. Hand-to-mouth subsistence is almost certain to narrow the scope and perspective of their program activities and to lower the degree of confidence and autonomy of their directors.

The school research office, then, is generally a central office staff unit which has limited and unstable influence. Its effectiveness depends almost entirely on services rendered to, and support and approval received from, immediate superiors. In most districts, it is the superintendent himself who determines research priorities. Shaw reports that 77% of 168 research directors sampled received assignments either from the superintendent or his cabinet and that only 16% made major decisions concerning research activities. Given the common background which central office colleagues share, however, it is not surprising that McKenna found that research directors generally reported congenial staff relationships. In most districts their position, if not their resources, facilitates providing information and services useful for managerial purposes. The duties assigned to research directors also tend to expose them to external information sources and give them the opportunity, if not the acknowledged responsibility, of informing their colleagues about developments elsewhere.

A position at or near the highest managerial level is normally considered to free a staff officer to perform coordinating and consulting tasks. Yet, school research directors do not seem to feel that this position enhances significantly their ability to influence school instructional programs. In spite of the fact that many observers, such as Richard O. Carlson, regard school administration as highly authoritarian in character, school principals and teachers retain isolated spheres of influence. They tend to regard research activity as having dubious value for the basic tasks of education. With the exception of the district-wide advisory councils or committees found in numerous districts, formal arrangements allowing teachers and principals to participate in research programs are rare. Because of this, research directors tend to try by informal or unofficial means to win acceptance and willingness to collaborate from persons who resist or are suspicious of inquiries and investigations originating from the central office.

Practically all of the studies of research offices report that their staffs consult with school staffs upon request. Seldom, if ever, do they take any initiative in promoting school-based research projects. The size of the district has apparently been an important determinant of such workloads. Shaw found that a somewhat larger percentage of the research directors in districts enrolling between 12,000 and 50,000 students received requests for services from school principals and teachers than did those in larger districts. Presumably, it is more difficult for the central office staff members of large districts to establish the necessary personal and informal working relationships. Rippey found that, in the small districts where research productivity was especially high, the school site personnel stressed the importance of human relations skills on the part of research directors. These districts gave greater weight to technical competence as a qualification for consultants from outside the district.

McKenna concluded that the patterns of activity and research competencies which determined the role of school research administrators were those preferred by the school leadership in each district. He states:

> The human element in the establishment of the position of research director and its subsequent operation was evident.... While they [the school officials] claim to have established the position on the basis of sound reasoning and an objective analysis of administrative organization, the role of individual personalities is evidently quite potent in the advancement or retardation of the position. (37)

Various summary statements from research directors themselves further illuminate their views of the positions they hold:

> Typical school research offices are generally restricted to predefined activity...
>
> Research has seemingly been, in many instances, something which is done after a program has been installed rather than prior to the development of innovative types of programs...a research office seems to be tacked on as an added-on entity which may serve as a status component for top administration.
>
> The liabilities are chiefly lack of staff and leadership and, in some cases, a crystallized, encrusted view of the role. Suspicion, fear, and lack of interest on the part of the rest of the staff may also be factors. A history of tiny budgets must be overcome.... Among assets are that the typical small size of offices permits wide growth into new areas unincumbered by inappropriate traditions.
>
> We have alerted recruits of the danger that they can be utilized for 'social bookkeeping' functions if they do not, themselves, actively initiate the more meaningful research which would affect the instructional programs.
>
> A continuing liability is the lack of patience many people have in anticipating solutions to difficult and persistent problems.

## THE NEW LOOK IN SCHOOL-BASED RESEARCH AND DEVELOPMENT PROGRAMS

A few school districts are attempting to upgrade school-based research and its contribution toward the accomplishment of educational change. Evidence of the trend to revamp the role and functions of existing research offices and their directors is apparent in the following excerpts from both official and unofficial sources:

### A New Role for Research

> The Office of Research and Evaluation of The School District of Philadelphia is a new organization which has been restructured since September, 1966, from the old Division of Research. This broadening and upgrading of the research function has been in response to the need, now widely recognized nationally, for research to play a more central and decisive role in public education, particularly in the large urban school systems.
>
> Philadelphia is one of the first school systems to make a major commitment to research and to actually begin the upgrading of its own research and evaluation capability. Others are actively preparing to follow.
>
> The purpose of research and evaluation at the public school level is to support the decision-making process, and this is accomplished by supplying valid and relevant information to professional decision makers at all levels--from the classroom teacher to the Superintendent of Schools. Appropriate information can improve decisions by reducing uncertainty as to the consequences of alternative courses of action, and, as a result, by increasing the probability that desired outcomes will be achieved. In this way, some of the guesswork in decision making can be reduced. (Report of Activities, 1967-68, Office of Research and Evaluation, The School District of Philadelphia, June, 1968.) (32)

> The functions performed by the staff of the Division of Research and Development are those which contribute to the promotion of sound decision making, evaluation of promising practices, encouragement of creativity, expansion of resources, improvement of performance, dissemination of information, and the maintenance of close working relationships with others. (From a statement of the functions and structure of the Division of Research and Development, Atlanta Public Schools, March 14, 1968.)

> ...Since the title of Research and Development is somewhat new to education, it may be well to state our concept of what the title means. It differs from the traditional concept of an educational research department in that [the Richmond] Department of Research and

> Development has a greater responsibility for implementing and transforming improved procedures into practice. (From a statement, "Responsibilities of the Department of Research and Development," Richmond, Virginia, Public Schools, undated.)
>
> NEW PLANNING DIVISION FOR SAN FRANCISCO SCHOOLS HAILED: The San Francisco Schools' organizational shakeup, approved by the Board of Education on Wednesday gives the school system here one of the most modern structures in the Nation, educators said yesterday.
>
> The unusual aspect of the new organization is the "Division of Educational Planning, Research and Development," which adopts a concept that is commonplace in business and industry.
>
> This division will be headed by Associate Superintendent______, who was formerly assistant superintendent in charge of secondary schools. Unlike the usual school system's little research department, it will rank equally with two other new divisions. (San Francisco Chronicle, June 29, 1968.)

These excerpts support the observation made by a number of school research directors, namely, that districts are adding the designations "development," "planning," or "evaluation" to the title of school research offices. Since few terms used in school administration have uniform meanings, the practice creates further semantic confusion. In the spring of 1968, the Portland, Oregon, Public Schools circulated an informal inquiry to school districts requesting information about their provisions for "planning and development" functions. The results indicated that a number of school districts currently use these terms as designations for offices engaged in the design and construction of school buildings or in some aspect of curriculum design and supervision. In the following sections, however, "planning" and "development" refer to some expansion or modification of the kinds of administrative support and instructional research activities discussed in previous sections and typically assigned to school research offices or research administrators.

### Organizational Self-Renewal

The school districts which have taken steps to enlarge, upgrade, or revamp their existing research offices are apparently adopting the view that organizational dynamics are intimately associated with the processes of inquiry and information production and utilization. The basic concepts of this movement, which has been slow in reaching educational agencies of all types, may be found in both philosophical and pragmatic types of commentary. For example, John Gardner, a psychologist by training and Secretary of Health, Education and Welfare from 1965 to early 1968, gives central importance in effecting social change to the processes of self-renewal which individuals, organizations, and entire societies may cultivate. He says:

> Every individual, organization, or society must mature, but much depends on how this maturing takes place. A society whose maturing consists simply of acquiring more firmly established ways of doing things is headed for the graveyard--even if it learns to do these things with greater and greater skill. *In the ever-renewing society*, *what matures is a system or framework within the continuous innovation*, *renewal and rebirth can occur*...for an ever-renewing society the appropriate image is a total garden, a balanced aquarium or other ecological system. Some things are being born, other things are flourishing, still others are dying--but the system lives on.
>
> Over the centuries the classic question of social reform has been, "How can we cure this or that specifiable ill?" Now we must ask another kind of question: How can we design a system that will continuously reform, i.e., renew, itself, beginning with presently specifiable ills and moving on to ills that we cannot now foresee? (18)

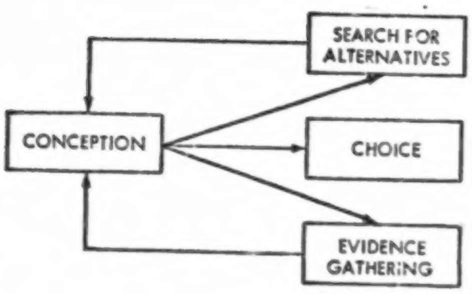
William T. Morris, a scholar distinguished for his explication of the management science approach to large-scale organizational problems in industry, feels that systematic inquiry is essential to innovation:

> To suggest that the ongoing of a business be regarded as a series of experiments is to suggest a rather important management concept. This is the proposition that a firm should be run so as not only to produce its products and services but also to produce information on how to improve its own operations. Organizations ought deliberately to produce among their various outputs information relevant for moving further toward their objectives. (43)

When Goldhammer probed the current problems, and workloads of school superintendents, he found them almost universally in need of better information upon which to base their decisions. Their situation characteristically stimulates demand for resources of staff advice and assistance. According to Morris, this need occurs when administrators realize that the decisions to be made are characterized by lack of clear relation between outcomes and goals and of operational goals; by outcomes which promise losses and gains that are difficult to combine into a simple evaluation of the action; by unfamiliarity and complexity; by nonrepetitiveness, without a history of past successes; and a number of other attributes of uncertainty.

Even when staff assistance is available, it is not enough in itself to ensure that administrators will make more rational decisions or advance the desired ends of organizational self-renewal. Morris uses a schematic representation of the productive interaction that must be established between those responsible for decision-making and those performing "inquiry" functions. (Figure 2). In this process, the manager's conception of the problem requiring attention determines whether an immediate decision will be taken, whether more evidence will be gathered, or whether he will search for alternative choices. The last two actions may modify the conception of the problem and widen the range of choices, whether they relate to short-range changes or long-range planning. When needed staff resources are lacking or

Figure 2: The Interaction of Decision-Making and Information Processing Functions[a]


SEARCH FOR ALTERNATIVES
CONCEPTION
CHOICE
EVIDENCE GATHERING

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[a] Morris, William Thomas, Management Science in Action, Homewood, Illinois: Richard D. Irwin, Inc., 1963.

are inadequate to influence the problem formulation, managers (school superintendents, in this case) make decisions on the basis of personal experience or habit.

The realization of many school administrators that their usual resources and framework are inadequate for informed decision-making is a precondition for change, but the building of systems that will generate and incorporate relevant knowledge and skills from sources within and without the district is an immense task that has scarcely begun. Successful experience in other organizations cannot be transferred directly to school settings, and the broad generalizations of the theorists are not easy to apply in specific circumstances. School systems must conduct their own experiments in organizational change and, in time, develop empirically the ground rules necessary to accomplish their self-renewal objectives. This paper attempts only to gather preliminary evidence concerning the views and actions of a small minority of school administrators who have already been involved in designing formal arrangements for school-based research and development programs, or who are seriously studying the organizational implications of self-renewal processes in their districts.

### Resource Requirements

When polled on the essential requirements and desirable organizational arrangements for effective research and development programs, a number of school research directors emphasized resource requirements, organizational roles, and/or implementation skills. Of these, resource needs were most frequently discussed. The following comment typically stresses an emotional rather than a rational prescription for "commitment":

> A school district must have a true interest in determining the strengths and weaknesses of its programs and services so that positive actions may be taken to improve them. Such concern must exist in the board of education, the superintendent and other administrative officers of the district, and the instructional personnel. A district which assumes, tacitly or otherwise, that it has no problems will not encourage or perhaps even tolerate the development of an effective school district R & D program. A district which sincerely desires to examine its efforts will attempt to provide the manpower and means to do so.

The importance of the leadership of the district superintendent was usually stated in stronger terms than "concern." Without his commitment and efforts, the establishment of an effective research and development program was considered impossible. This recognition of the importance of statesmanship to ensure organizational self-renewal is consistent with the views of the eminent sociologist, Philip Selznick:

> It is in the realm of policy--including the areas where policy-formation and organization-building meet--that the distinctive quality of institutional leadership is found. Ultimately this is the quality of statesmanship which deals with current issues, not for themselves alone but according to their long-run implications for the role and meaning of the group. Group leadership is far more than the capacity to mobilize personal support; it is more than the maintenance of equilibrium through the routine solution of everyday problems; it is the function of the leader-statesman--whether of a nation or a private association--to define the ends of group existence, to design an enterprise distinctively adapted to these ends, and to see that that design becomes a living reality. These tasks are not routine; they call for continuous self-appraisal on the part of the leaders; and they may require only a few critical decisions over a long period of time. (54)

If the leader-statesman is a superintendent committed to the implementation of a research and development program, his position is more favorable than any other for obtaining the necessary resources to support it. The level and kinds of support in terms of money, staff, prestige and other elements varies with the size and resources of the district, including the present research office staff, and must be tailored to the circumstances of each case. Support from the school board, teachers and principals is an asset but, at the outset, their attitudes are not as crucial as that of the superintendent.

Understandably, school research directors give high priority to increased funding and staff capabilities for carrying out their current and projected tasks. They generally advocate a five-to-tenfold increase in expenditures, the levels considered minimal for research and development activities in industry or in military agencies. Foundations and Federal or state governments have given financial support for preliminary planning and reorganization, but the functions of planning and development must eventually be incorporated into the district's regular budget. Policymakers must acknowledge that it is proper to spend money for "slack"--for planning and replanning, for deliberation, and for trial and error. Some districts have found it helpful to justify the pay-off from such activities in terms of opportunity costs; that is, the financing of current activities which are not accomplishing their objectives represents a foregone opportunity to spend money for development efforts that would result in more effective programs. From this point of view, the amount which a district spends for organizational self-renewal can be considered as insurance that the bulk of its resources is likely to be spent advantageously.

Consultants have made important contributions to school district reorganizations. In several instances, consulting firms or academicians were employed to conduct extensive surveys of the existing organizational structure and administrative practices, before any decision was made to restructure district management functions (including the office of research). The pros and cons of using outside experts to provide such information and to develop recommendations for change are well documented in management literature. However, such assistance has undoubtedly been indispensable. Only a limited number of persons are able to transfer the underlying concepts of organizational dynamics into existing educational settings; consequently, school districts must compete for their services. The studies of existing school management practices indicate that, under present conditions, such people are not likely to accept permanent employment in local districts, even if suitable positions are created.

School administrators consider adequate preparation time and careful phasing of change processes essential to building understanding and acceptance of new staff roles. It is not surprising that the preliminary stages of instituting school-based research and development programs have usually covered two or more academic years.

### Organizational Modifications

Practically all the central staff reorganizations undertaken to strengthen district-wide planning and developmental functions have placed these functions in an office which has a higher status than that of the existing school research office, and its director is usually made parallel in status to the superintendent's first-line subordinates. Organizational planners tend to recommend that the director supervise only the activities requisite for developing or maintaining program and management information systems. The preferred plan is to remove operational workloads, such as those involved in data processing, pupil accounting, and testing program administration, from his immediate jurisdiction.

The variability of school district organizational patterns is reflected in the diversity of proposals for internal organization of the new departments. Some, in fact, bear a close resemblance to the models they were presumed to replace! However, when responsibility for such operations as testing programs and data processing is retained, there is a stronger tendency to create separate units with strong supervisors and segregated budget administrations. These are safeguards for dealing with the problem of routine and service workloads absorbing the resources nominally allocated to developmental activities. A more formalized segreation of assigned instructional and administrative research activities is normally provided. In instances where instructional research remains within the department of instruction, it is considered essential that informal relationships between the staffs of the two departments be close and continuous.

At the present time, school research administrators are deeply divided regarding the assignment of responsibility for the evaluation of instructional programs. Some officials offer both practical and theoretical reasons for using outside experts to perform all the formal evaluation of instructional programs. Others contend that this function is integral to sound program planning and decision-making and that districts must be capable of performing it. They see it as the responsibility of a unit within the office responsible for planning, research, and development, or of some other department with which this office works closely. The matter is complicated by the fact that major costs of evaluation efforts are at present chargeable to Federal grant funds whose future availability is by no means assured.

The director of this new department, in some cases the former director of research, is expected to spearhead the district's planning efforts, especially as they relate to longer-range rather than immediate concerns, but his authority is usually spelled out in terms of "coordinating" and "informing" responsibilities. He may be given the discrete power to ensure that the innovative programs or research projects planned and carried out by others are consistent with district priorities and policies. Another assigned function with implied powers is that of change-agent, which necessitates the organization of, and continuous involvement in, district-wide group deliberations both of staff members at various hierarchical levels and among peers in the school settings. Some of these team arrangements may be formally established as committees or advisory groups. A charter in the form of job descriptions, budget authorizations, and statements of organizational function, which legitimize systematic planning, may give a new office of research and development a strong and potentially aggressive role in devising system modifications, but the expectation is that its influence, like that of the research office, will continue to be exercised with a sensitive regard for existing situations and working relationships. This role prescription is consistent with that of Goodson and Hammes, who describe the change-agent function as one of active facilitation and perpetuation of a climate in which change and innovation may flourish as a normal part of system operations. (23)

Most reorganization plans envision planning and development functions which exceed the scope of functions previously assigned to the research offices. Thus each staff member involved in planning and development may be assigned tasks as inquirer, persuader, prodder, confidante, evaluator, and promoter of rational modes of inquiry. Theoretically, such activities serve both officials at the top management level who are responsible for final decisions on resource allocation and program objectives, and professionals at the subordinate levels who actually endorse and carry out new programs. The tendency to neglect the latter responsibility in favor of the former is recognized as a possible hazard, and several schemes to provide decentralized planning and research services at school sites have been proposed, including the use of specialized teacher-researchers. Their use is normally expected to be the second stage of a reorganization effort, since such activity is dependent upon central office support.

The need for two other kinds of specializations--systems analysis and research information retrieval--has been widely recognized and actually formalized as units or positions in some new district planning offices. This justification is offered in the 1967 reorganization plan of the research and evaluation operation for the School District of Philadelphia:

> First, an absolutely essential need is for a design and analysis service. A person familiar with the latest statistical analysis techniques and with the means for handling them through electronic data processing equipment is indispensable. The capability for appropriate and rapid analysis makes a full, sophisticated, responsive research and testing operation possible. Without this capability, the operation cannot begin to meet all of the system's needs and, in fact, is so limited that its value to the system is seriously impaired.... The design and analysis service is not meant to overlap or usurp the function of the district's data processing division. It will, rather, provide the means whereby data processing can serve research and testing. (32)

The importance now given to searching out educational research information reflects the desire of districts to take full advantage of work done elsewhere. This task is indispensable to determine whether districts need to carry a proposed inquiry, and, if so, that researchers are fully aware of what is already known. Information specialists can also search out specific types of information which administrative personnel need. Another useful service of a specialized retrieval service may be the review of current professional literature and the circulation of significant materials to district staff members.

## Implementation Skills

Several research directors pointed out that the new conceptions of planning, research and development activities to be conducted in local school districts call for the exercise of special implementation skills. As such skills are not widespread at this time, they consider training programs essential to achieving any measure of success in implementing reorganization objectives. Two types of training programs are envisioned: the first would be of a more technical nature, to meet the special needs of staff members directly responsible for projected activities; the other would help administrators, principals, and teachers to learn and make habitual use of systematic modes of inquiry.

Such training programs are seen as contributing to organizational change processes and improved staff morale. Staff development activities are recommended which would lead to improved communication and feedback of information up, down and across formal lines of responsibility and authority. They are projected as integral to the evolutionary process of reorganization, both because it is recognized that the desired skills and attitudes require practice and time to mature and because there is uncertainty as to the availability of effective training programs and methods. In fact, next to insufficient funding, the question of whether the necessary school staff competencies and attitudes could be developed was seen as the most formidable hazard.

These concerns are not unduly pessimistic, since the number of operational programs to train educational planners, research information specialists, or change-agents, or to teach other relevant knowledge utilization skills is still very limited. There is danger of growing frustration on the part of those school officials who continue to define their goals only in terms of achieving top managerial and overall educational goals.

Not all projected training needs can be met simultaneously, but experience in other fields indicates that various knowledge utilization skills can be taught and then applied to solving a variety of smaller problems in more rational ways. (19) In such cases, the process of constructive thinking and problem solving breaks down into a series of operations which do not all require the same level of competence or involvement from every staff member, and which can be carried through in limited manageable segments. The following ten-step breakdown of the process is used in conjunction with the training activities of the Cooperative Project for Educational Development (COPED): sensing, screening, diagnosing, inventing, weighing, deciding, introducing, operating, evaluating, and revising. Watson points out that efficient and experienced persons may discover shortcuts in this full-scale process, which work well in certain conditions. He also notes that a school system seeking to solve its problems will not give equal weight and attention to all of them. (58) Thus we find that one of the first tasks of a new planning and development staff is likely to be an inventory of district functions, operations, and staff competencies in order to determine priorities for accomplishing short-range and long-range objectives. By utilizing consultants or such temporary working arrangements as teams of school personnel who have complementary skills and responsibilities, they have been able to implement some desired changes while, at the same time, conducting further staff recruitment and training required for more extensive reappraisal and renewal efforts.

In summary, it appears that the start toward transforming the traditional operations of school research offices into comprehensive and systematic programs for planning and development, as seen in close to twenty districts around the country, represents a decided break with the past.

The initial moves have been to legitimize the new program directions by means of organization plans, job descriptions, and budget provisions. Giving substance to the plans will take many years and will depend to a considerable degree on the pace at which the numerous agencies now involved in educational research are able to move their own plans into production. To the extent that school districts become the beneficiaries of the broad-scale development and training efforts under way elsewhere, their own knowledge-utilization tasks will be eased.

## WHAT ABOUT THE SCHOOL RESEARCH OFFICE? SUMMARY AND CONCLUSIONS

Since school research offices may take on so many different forms and functions, one might expect that judgments concerning their effectiveness would be equally varied. The fortunate superintendent who can count on his research office to come up with accurate, timely facts and figures to facilitate his day-to-day management decisions will judge that it performs a vital function. He is also likely to attach importance to its competent and discreet handling of the district's contacts with outside information-seekers and educational researchers. The research director's colleagues in the superintendent's cabinet may value his assistance on occasion, yet regard his position as much less essential and responsible than their own. The research administrator who would like to contribute to the solution of instructional problems by working more closely with principals and teachers may find frustration in a situation which gives priority to central office workloads. In some districts, many teachers would respond to a query about the services of their research office by saying, "What research office?" Investigators who find these offices engaged largely in data processing, testing programs, pupil accounting, or budget projections might consider that the functions were both essential and efficiently performed, but would conclude that the designation "research office" was a misnomer. So the views of individual observers are virtually useless for evaluative purposes.

To establish a more powerful basis for generalizing from the data presented in the foregoing sections, it is necessary to take into account both the new external influences on school-based research activity and the internal school district variables of structure and process. Structure refers to the relevant organizational relationships and process to the sequential stages by which research-based information is produced and used in educational decision-making. Administrative theory lends support to the premise that the success of educational improvement efforts will depend closely on finding relationships among external and internal influences which will increase the self-renewal capabilities of school districts.

## Organizational Requirements for Educational Improvement

In systematic analyses of organizational structure and functioning, it is assumed that some combinations of subsystem activity enhance organizational adaptability, while others may retard it. The imperatives which must be met in order to introduce innovative practices may vary from one organization to another, but certain common properties of change and assimilation processes have been identified. According to Joseph L. Dionne, who has applied the social system concepts of Talcott Parsons to local school systems, there are four problems which must be solved in order to accomplish educational innovation in such settings:

> The first problem is gaining commitment to a new set of values. The second is to produce environmental conditions conducive to their attainment. The third is to mobilize the resources to attain the goals. The fourth problem is that of guaranteeing harmony in inter-unit relationships following the introduction of change. (15)

Let us examine the contribution which school research offices, as subsystems, have made to the achievement of these objectives.

The ambivalent response of school research directors to the question of how new developments might affect their work indicates an unstable dependent, and paradoxical role. Only a minority work in small districts where their efforts to influence teachers and children would be most direct and visible. Large districts benefit from "economies of scale" with regard to creating formal research arrangements, but the services of their staffs are thinly spread over large student populations and many school sites. The ideology which casts school researchers as independent, dispassionate experts is belied by the common practices of recruiting non-specialists, denying them organizational and budgetary autonomy, or assigning them managerial staff duties. Research directors may be favorably situated to study external situations and even, on occasion, to collaborate with others in handling new workloads such as those which accompanied Federal grant programs. But they have lacked the leverage to make independent or innovative contributions to school administration and classroom instruction. To the long-standing confusion over appropriate assignment of duties has recently been added the uncertainty of the changing educational research environment and the unpredictability of external financial support.

If one applies the terminology of Katz and Kahn, our data concerning research offices indicate that they are incorporated either into the "maintenance subsystem" of school district organization, which tends to build stability and predictability into its operations, or into the "managerial subsystem," which concentrates on the tasks of organizational compromise, control, and survival. (34) Organizational studies in other fields confirm the tendency for school research offices to reflect the idiosyncratic and provincial characteristics of their districts and to have relatively weak interchanges with other agencies. They may be useful adjuncts to a local school administration oriented to minimal disturbance of the status quo. When measured against the Dionne criteria for needed support of educational innovation, however, it is clear that such offices have lacked the ability to change school system values, to influence school environments, or to mobilize needed resources. Some have been rewarded in the past for their skill in avoiding any contribution to disharmony within the system.

## Emergent Roles and Skills

The tendency for a few school districts to establish a new department for planning, development, and research may be traced to a model that Katz and Kahn define as an "adaptive subsystem." A special staff, empowered to develop proposals for alternative modes of operation, to provide for either environmental or internal restructuring, and to project future action, is frequently found in large-scale industrial and public organizations to anticipate and deal rationally with changing conditions.

Such an office in a school district necessitates a reorientation not just of the role of the research office, where one exists, but also of the attitudes and working relationships of the entire staff. The skills and knowledge considered essential for the specialized role of educational planner are indicated in the following statement which the Wisconsin State Department of Public Instruction recently developed for the position of Advanced Project Development Manager:

> Advanced knowledge of concepts, techniques and changing approaches in the broad area of planning as it is related to public education. Advanced knowledge and understanding of the principles and techniques in public administration and local government liaison. High degree of skill in the use of techniques in both short and long term department planning and in related communication processes. Ability to plan for, assign, and train staff. Ability to lead in the analysis of programs, development of alternatives and program decision making under general policy outlines. Ability to anticipate the need for, evaluate, develop, recommend and implement new policy and

> procedures. Ability to develop and maintain effective intra- and inter-departmental and inter-governmental relationships. Ability to articulate department policy and programs in written or oral manner.

The skills and activities demonstrated by most school research offices have not generally approximated the level and thrust required by a viable "adaptive subsystem." Many students of organizational behavior question whether persons who have become proficient in handling the kind of staff role exemplified by the school research office can perform well the developmental tasks which call for greater independence, risk-taking, and imagination. This remains to be seen in the case of school research directors who may be given such new responsibilities in their own districts. Those who have the opportunity to demonstrate their competence and potential for growth doubtlessly have two advantages over newcomers: they know their schools and they have been closer to the action.

## The Knowledge Base for Organizational Success

In adaptive organizations, timely and relevant information is an indispensable resource. Organizational and program planners consider the production and communication of such information to be interrelated activities which, when implemented in their entirety, ensure maximum rationality in an agency's planning and operations. The specific tasks to be performed may vary according to the mission and functions of the organization, but, in general, the more stable and standardized its situation, the less complex will be its informational requirements. In contrast, the local school districts are faced with new demands for adaptation and are unstandardized in many important characteristics. They need a considerable amount of data which must be shared by a large proportion of their staff members. One of their many information-processing problems, of significance to researchers working both within and without school districts, is that of testing and modifying proposed instructional innovations. Such innovations are commonly imported from outside sources and should be evaluated on a trial basis prior to their system-wide adoption. The variability of local district conditions makes operational testing both an important and demanding task.

As an aid to observing areas of relative strength and weakness in the performance of specific tasks of the knowledge production and utilization process, the Far West Laboratory has developed the following checklist of its components:

1. Determination of school or district needs in the areas of curriculum, methods of instruction, inservice education, counseling and guidance, or administration by performance of the following operations: search, description, verification, and establishment of priorities.
2. Formulation of researchable problems, based upon needs in any one of the five areas, by performance of the following operations: (a) identify the present problem, (b) describe desired outcomes, (c) formulate solution alternatives, (d) prioritize alternatives, and (e) cast alternatives in a form for subsequent information search and field testing.
3. Collection of relevant information pertaining to alternative solutions by performance of the following operations: search, retrieval, abstraction, interpretation, dissemination, and establishment of priorities.
4. Demonstration, operational testing and evaluation of alternative solutions by performance of the following operations: (a) devise an appropriate research design, (b) administer treatments, (c) collect data, (d) analyze data in terms of need by decision-making groups (compare solutions' strengths and weaknesses, costs, benefits, etc.), (e) interpret, disseminate, and report results of field test operations to relevant groups, and (f) suggest methods for implementing results.

It may be noted that most of these tasks require collaboration among persons responsible for program administration and those engaged in the information service. In other words, for full effectiveness, information search and analysis are interwoven with an organization's planning and program operations. Some specialization is appropriate of course. The responsibilities for the collection and dissemination of data, for formulation of researchable problems, and for the interpretation of operational test results may be reserved for professionals, i.e., researchers. In schools, the authority to "establish priorities" or "administer treatments" falls exclusively within the province of supervisory and teaching staffs.

Measured against this criterion statement of the knowledge utilization process, the capacities of school research offices appear to be limited by lack of autonomy, role uncertainty, and inadequate fiscal and personnel resources. Where school district leadership and teamwork with other school personnel create favorable conditions, the school research staffs have variously demonstrated proficiency in needs assessment; in problem formulation; and in data collection, analysis, and dissemination. Where school staffs are resistant to, or are inexperienced in, systematic program planning or self-evaluation, the instructional research function has become an isolated and largely expendable function. Even when the new Federal grant requirements necessitated utilizing the skills of school research directors, the need for their early involvement in the knowledge utilization process has been frequently overlooked. An evaluator who does not participate in the needs assessment and problem formulation stages of an innovative program is at best a limited partner in organizational adaptation. That has been the fate of many school research directors.

## RECOMMENDATIONS: THE LABORATORY AGENDA

The foregoing analysis of the interrelated variables treated in this study of school research offices forms the basis for the following recommendations concerning the Laboratory's future agenda for investigating organizational arrangements for utilization of research-based information in school districts, disseminating its findings, and--when sufficient data about alternative arrangements are available--developing a set of organizational prototypes for successful handling of educational research functions at the consumer level, under varying conditions. The criterion for organizational success which guides this entire Laboratory activity is defined as the increasing capacity of local school district personnel to design and carry out their activities on the basis of well-informed consideration and choice among relevant and potentially productive courses of action.

### The Laboratory Agenda

1. Our data indicate that, however useful their other activities may be, most school research offices have made a very limited contribution to instructional improvement and organizational change. Thus it is recommended that, when the occasion for such consultation may arise, the Far West Laboratory should caution the officials of a district which does not have such an office against the potentially dysfunctional effects of creating such a unit along traditional lines.

2. The growing tendency for school districts to organize high-level offices responsible for system-wide planning and development functions seems to provide a basis for enhancing their organizational adaptability. The trend is too new, and the evidence of accomplishment too scanty, to permit an unqualified endorsement of this arrangement. It is also difficult to assess the degree to which existing research office staffs could

adopt the new organizational roles and responsibilities. However, experience in other fields and the initial reports of school districts under reorganization are sufficiently encouraging to justify the Laboratory's urging school officials at least to consider seriously the possibility of modifying existing arrangements or establishing formal organizational units responsible for integrating the district's planning, development, and research functions.

3. School-based research organization and activity are in a restless and transitional state which merits careful monitoring by the Laboratory staff. School administrators, including research directors, show increasing awareness of the local district's need for stronger knowledge utilization capacities, and are groping for solutions. At present there is little research-based data to guide administrative change in school districts and it may take several years before the major reorganizations now under way becomes fully effective. It is therefore recommended that the Laboratory extend this exploratory study to a longer-range project which would entail selecting a sample of districts attempting such reorganization and analyzing the factors which contribute to their success.

4. The Laboratory should regard the creation of central school departments as only one alternative for organizing and conducting planning, development, and research activities in a local district. Our data indicate that only a limited number of districts have, or will have, sufficient student enrollment and fiscal capacity to support a cadre of central management and instructional specialities. The prospective growth of planning, development, and research functions in smaller districts requires separate lines of investigation. It appears at present that there are several alternatives: interdistrict arrangements, utilization of other external or temporary assistance, and formal provision for certain school personnel to perform a combination of duties which include planning and research functions.

## GUIDELINES FOR THE SCHOOL ADMINISTRATOR

A local school administrator interested in increasing research-based information resources in his district should realize the handicaps of a school research office established along traditional lines, as illustrated in this report. On the other hand, he would find considerable support in administrative theory for the proposition that an organization which aspires to modify its operations must give formal status and continuous attention to the functions of planning, development, and research. This is now commonly recognized by the leadership of business, industrial, and many governmental enterprises.

The following guidelines are derived from information concerning both school-based research activity which has fallen short of expectations and current reorganizations which are as yet incomplete and untested by time. School staffs may consider them when designing a centralized research and development function, but should remember that they are tentative, controversial, and by no means exhaustive. For convenience, the projected central office units will be referred to as R & D Departments, although an appropriate title might include such other terms as planning, evaluation, office, division, services, management, etc.

1. The commitment and sustained effort of the superintendent and a workable majority of the school board and key district staff members are essential to promote organizational adaptability in a school district. An active leadership group has the authority to allocate resources and the status which facilitates mobilizing the efforts of principals and teachers, parents, and students, and the community at large.

2. The stages of reorganization must themselves be carefully planned and scheduled, and must allow sufficient time to develop new competencies, favorable attitudes, and behavioral change among district staff. Drastic measures which dramatize a break with past practices are likely to have short-run and deceptive effects, because organizations show a pronounced tendency to revert to accustomed operations in the wake of reorganization efforts. One authority has said that establishing an organizational system for the performance of research and development functions is itself an R & D problem. It is necessary to employ the same modes of rational inquiry and behavior modification that underlie new learning or innovations in other areas of human activity, but the processes of organizational change are likely to have even more complex and unpredictable aspects.

3. The hierarchical status of the official responsible for planning and development functions, or for an R & D department, should be the equivalent of the other top officials reporting to the superintendent. This does not imply that these functions become the exclusive responsibility of a special staff. The planning function is inseparable from all supervisory and major operational tasks in the district. However, formal recognition of its importance gives R & D staff the authority to stimulate and coordinate such activities on a system-wide basis.

4. An examination of existing district practices and problems is likely to be both a necessary and useful preliminary for developing the blueprint for reorganization. In the early stages, it is possible for perceptive leaders to stimulate and solicit ideas, to obtain staff involvement, and to debate alternatives in a relatively permissive atmosphere. However, the reconnaissance phase itself should follow a definite schedule and result in the production of a set of definite proposals or options.

5. Most districts will find the use of some assistance from outside consultants necessary to the reorganization effort. If well qualified, such persons offer objectivity and knowledge of exemplary practices in their assessment of local needs and conditions. They may also be useful in developing organization and staffing plans, recruiting new personnel, and devising training programs. The possibility of using temporary consultants for a variety of specific training or "change-agent" tasks should also be explored.

6. Attention should be given to systematic planning and research-oriented activities in selected segments of the district's organization (i.e., school sites or specialized instructional staffs) concurrently with initial efforts to develop such competencies in the R & D Department. Any reorganization which seems to involve only the district's central office tends to generate detachment or suspicion elsewhere. Further, the experience of quasi-experimental groups may provide guidance of value for maintaining flexibility in the implementation of successive stages of reorganization.

7. Since responsibility for planning and development functions cuts across the lines of hierarchical authority, two sets of organizational directives are needed. The first should specify the responsibilities of the R & D departments, and the second, the related duties of other departments and the composition and duties of such interdepartmental units as task forces, teams, committees, or other temporary structures which coordinated planning activities require.

8. The district's essential data collection, analysis, processing, and dissemination activities should be included within the jurisdiction of the R & D Department, or closely linked with it procedurally. The eventual creation of integrated data banks to serve the full range of

the district's instructional and managerial purposes should be considered and planned for well in advance. At the outset, it is desirable to utilize to the maximum extent the research-based information available from external sources. Improved systems analysis and information handling capabilities will usually be needed.

9. The R & D Department should either be given resources adequate to perform any regular operating or crisis workloads for which it is made responsible, or such functions should be assigned to other units. This proposition derives from the widely reported experience that such tasks as data processing, test program administration, pupil accounting, or grant proposal preparation draw personnel and fiscal resources away from planning and development activities. The perpetuation of many unnecessary and expensive operations may be associated with the failure to allow the R & D staff time to examine them critically in relation to district information needs.

10. Administrative and instructional types of school-based research should be regarded as related but distinctive specialties, requiring different competencies and some degree of organizational separation. Agreement is lacking as to whether the two programs should be separate units within the R and D Department or whether the investigative and evaluative activities associated with the instructional research functions are best performed in some other organizational locus. But it is essential that these latter activities be conducted in such a way that they will influence, and be influenced by, the district's overall plans, both for organizational self-renewal and improvement of its educational program.

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